South Mountain Corridor Study
Citizens Advisory Team Meeting
April 17, 2008
Parking Lot Issues

The following questions or issues were brought forward as part of the February 28 and March 18, 2008, Citizens Advisory Team meetings and designated as "parking lot issues" because the study team needed to conduct research to address the question or issue accordingly. In addition, questions submitted on blue question cards by CAT members and the public are answered below. Each comment received on a blue question card is written in this document as submitted. Each "parking lot issue" is addressed by showing the question followed by the Arizona Department of Transportation's (ADOT) written response.

This document is divided into two sections. Immediately following are those questions that have ADOT responses. At the end of the document are those questions that will have responses in a future parking lot issue memorandum.

Questions answered from February 28, 2008, SMCAT meeting

Topic	SMCAT member/public question	ADOT response
Profile options at the South Mountains' ridges	It seems that our original CAT meetings brought to light some issues that we are still not seeing ADOT address. Such is the case tonight when we are shown the photos of the cuts through the ridges. The problem with this is that the aerial is shown to us at an angle that is straight on. But showing us this angle, it doesn't allow us to see the most environmentally sensitive portions of the ridge cut, the area between the ridges.	A number of slides from the presentation, including 49, 50 and 51, showed different aspects of the proposed freeway as it would pass through this area. ADOT and FHWA are in the process of preparing a NEPA EIS which requires consideration of public comments in the context of scoping. This specific question speaks specifically to the issue of visual quality. ADOT and FHWA have undertaken a visual resource analysis that in method is considered in the scientific community to be sufficient for impact assessment. No additional visual simulations are warranted for the federal lead agency to make a decision regarding the proposed action.

Profile options at the South Mountains' ridges (continued)	Can you give me an example of a worst case slope that was engineered and the issues that it might be having 20 years later?	An example that has been in the news lately has been the SR 87 corridor between Phoenix and Payson. Recent events have been attributed to wet soil and earth movement in the area. This corridor has also previously required rock removal, slope treatment and additional stabilization since its original construction. In other areas such as I-17, just south of Sunset Point Rest Area, rock fences were installed a number of years after the original construction to help prevent falling rocks from reaching the roadway. Based on known geological information, it is believed that the South Mountain cuts would be more similar to the cuts along SR 51 or Pecos Road in Phoenix, which have encountered minimal maintenance issues since construction.
	You talk about the width of the tunnels that were studied for this project. How wide are the comparable tunnels in the United States and other countries?	In Arizona, the Queen Creek Tunnel, located on US 60 just east of Superior, is a quarter mile long and 40 feet wide. The tunnel was constructed in 1952 and accommodates three 12 foot lanes (one westbound and two eastbound lanes). In 2006, the Los Angeles County Metropolitan Transportation Authority completed a feasibility study for the I-710 tunnel under South Pasadena. The widest tunnel considered In the study was 72 feet wide, conveying four lanes of travel. The Mullum Mullum twin tunnels pass under the Mullum Mullum Valley near Melbourne, Australia, and are part of Australia's 25.5-mile Eastlink Freeway. Each of the tunnels is about 52.5 feet wide by 1 mile long and accommodates three lanes.[1] The Eastern Distributor project in Sydney, Australia, included a 1-mile tunnel approximately 80 feet wide. It carries three lanes in each direction stacked on top of each other. "The tunnel's claim to notoriety at the time it was built [2000] … was that it was the widest tunnel in the world."[2] The feasibility and cost of the South Mountain Freeway tunnel options were determined by geotechnical engineers and tunnel experts analyzing the known geological attributes of the South Mountains; their analysis reflects their engineering judgment based on current practice.

[1] http://www.thiessjohnholland.com.au/
[2] http://www.easterndistributor.com/history/index.asp

Alternative screening	On the Riggs Road Alternative slide, are there any other alternatives besides not going through the Gila River Indian Community (GRIC) that would meet the project's purpose and need?	The purpose and need criteria for the proposed action included improving regional mobility in the Phoenix Metropolitan area. A primary purpose of the South Mountain Freeway is to serve as a critical link in the existing Regional Freeway System (RFS) and, in so doing, would complete the linkage of the RFS and optimize the performance of that system. The South Mountain Freeway would contribute to improved regional freeway distribution and arterial network traffic distribution—goals of the *Regional Transportation Plan* (RTP). The connection to the existing Loop 202 (Santan)/I-10 system traffic interchange is important in optimizing traffic operations and, therefore, is an important consideration when selecting reasonable alternatives. The Riggs Road Alternative could serve regional traffic as noted in the question regarding the community of Maricopa and therefore, such an alternative could serve the purpose of addressing a regional need. Although it would address *a* regional need, it is not *the* need established and identified for the proposed action and in the RTP. Therefore, such an alternative would not be consistent with any regional transportation planning efforts (like the MAG RTP) and, therefore, would not address any specifically identified planning goals for an integrated transportation network in the Valley. The Riggs Road Alternative was considered and presented in this study because of interest it generated as a potential improvement corridor. The primary reasons the alternative generated interest were that it would have been further removed from developed areas and would have routed Phoenix-area bypass traffic, including trucks, further from those developed areas. Most important, the majority of the alignment is within GRIC boundaries and, as such, it is a nonviable option. For the reasons stated above, traffic model projections are not necessary to support the above conclusions and, therefore, were not developed. NEPA does not require additional study when sufficient information is available to make project-related, informed decisions. Current planning efforts, including the Hidden Valley Framework Study, are evaluating options for additional corridors that would be located in southeast Maricopa County and northern Pinal County and would provide additional transportation options for Maricopa, Casa Grande and other parts of Pinal County. Proposed improvements from these planning efforts would not meet the purpose and need criteria for this study.
	Do you have the numbers showing less traffic using the Riggs Road Alternative?	
	Riggs Road Option: Aside from going through the Indian Community, why does this option not meet the requirements? What about the Maricopa community having access (the real growth area)?	
	On slide 19, you showed the Riggs Road and the SR 85 to I-8 alternatives. Wasn't there an alternative that was geographically between these two alternatives?	

Alternative screening (continued)	I have a question regarding slide 12. The second bullet states that the Parkway Alternative was eliminated due to similar impacts as a freeway alternative being constructed. What impacts are you comparing? What would be the housing displacement, costs and width of the parkway alternative?	A quantitative comparison of the cost and impacts between a parkway and a freeway was not conducted as a part of this study, nor is it necessarily required. The parameters of a parkway alternative (number of lanes, width of right-of-way, traffic capacity, ownership) were assessed early in the study process by ADOT, FHWA and the City of Phoenix staff of lead engineers, scientists and planners. Based on these parameters, the team determined that the parkway alternative would have similar types of impacts as a freeway in the Eastern Section, including increased traffic volumes; increased air quality and noise level impacts associated with the traffic; residential displacements; and visual, biological, and other environmental impacts associated with cuts through the South Mountains. The team acknowledged in its assessment that these impacts would be slightly less than those that would occur from a freeway, but because a parkway would not adequately address capacity deficiency, contribute to optimizing the RFS performance or have consistency with goals and objectives of the RTP, it was eliminated from further consideration. Today, the study team believes the reasons to not carry a parkway alternative forward into a detailed study remain valid. To further support this conclusion, a parkway facility would be owned and operated by the City of Phoenix, which has stated and continues to state it would not support a parkway.
Profile options along Pecos Road	Were air quality impacts considered for both above- and belowground options?	Air quality impacts were not found to be a major factor in the comparison of impacts between the above- and belowground options along Pecos Road. Experts concluded the differences in impacts associated with National Ambient Air Quality Standards (NAAQS) criteria pollutants would be negligible regardless of the profile. The area of impact for carbon monoxide (CO) emissions includes properties immediately adjacent to the freeway right-of-way. With the belowground option, in the areas where drainage basins would be required, properties would be located farther from the freeway and would, therefore, receive less impact from CO emissions. Information regarding air quality will be discussed at two future CAT meetings.

Miscellaneous	I have a question regarding the *Regional Transportation Plan*. Have we made any steps forward in incorporating the vast growth in northern Pinal County into the Maricopa County RTP?	Influences from Pinal County have been and will continue to be a factor incorporated into regional transportation planning for Maricopa County. The *Southeast Maricopa/Northern Pinal County Area Transportation Study* (MAG 2003) was conducted during the development of the *Regional Transportation Plan* (MAG 2003). The purpose was to document transportation relationships between Maricopa and Pinal counties and identify long-range transportation needs. Current statewide planning efforts—including the Hidden Valley Framework Study being conducted by MAG in association with federal, state, tribal and local agencies—are evaluating options for additional transportation corridors in the northern Pinal County and southern Maricopa County area. The results of these types of studies would support future planning efforts in both counties.

Questions answered from March 18, 2008, CAT meeting

Topic	SMCAT member/public question	ADOT response
Floodplains	The slide mentioned self-cleansing culverts. How large would these need to be to accommodate a 100-year storm?	The size of a culvert would depend on the flow that it must convey. This would be determined during the final design process. ADOT requires a minimum diameter of 24 inches for a pipe culvert and a minimum height and width of 4 feet and 6 feet, respectively, for a concrete box culvert. Self-cleansing does not affect culvert size. For self-cleansing purposes, the velocity through the culvert would be a minimum of 3 feet per second.
	Have you considered evaluating for a 500-year storm event?	ADOT's standard is to design for a 100-year storm. Designing for a 500-year storm would not be financially practical.
	How many 100-year storm events has the area had in the last 30 years?	Rainfall from a single storm varies by location, duration and intensity. The Flood Control District of Maricopa County (District) Web site provides a description of the major storms that have occurred in Maricopa County since 1889.[3] The descriptions do not indicate that a storm in the last 30 years included rainfall that would be equal to or greater than a 100-year storm. (Rainfall data provided in answer to following question.)

[3] http://www.fcd.maricopa.gov/Education/history.aspx

Floodplains (continued)	Based on preestablished rainfall, what is the amount of rain that would fall in a 100-year storm in 2 hours?	The following are examples of rainfall for the area of the South Mountain Freeway. Rainfall for the 100-year, 2-hour storm would be 2.9 inches. Rainfall for the 100-year, 6-hour storm would be 3.4 inches. Rainfall for the 100-year, 24-hour storm would be 4.2 inches. The numbers above represent rainfall expected at a point or points in a watershed for the specified frequency and duration of the given storm.
Floodplains, RE: Federal Emergency Management Association (FEMA) Flood Insurance Rate Maps (FIRM)	FEMA doesn't update their mapping often. How updated are the maps that you are using?	The study team is using the most recent FEMA FIRMs available and is continuing to monitor FEMA actions to be certain the most recent maps are used. If there is a study that contains more recent information, the study team will incorporate that information as appropriate. FEMA updates its floodplain maps when money is available and when there is a need to evaluate an area.
	How often is the FEMA information updated?	
	FEMA will generally give us a general 100-year storm data. For a large area such as this, what about storms that are localized. Is there something accounting for this?	Yes, our design will account for different storm frequencies, distributions and durations. The worst-case runoff condition is used for the design of drainage facilities.
	You said that FEMA digitized their maps. So they took the old data and digitized it? I have seen some FEMA maps so out of date that they are unusable. Are you saying you are using FEMA data without doing your own analysis?	FEMA has digitized its maps and currently has the most up-to-date floodplain maps available. The Study Area has two mapped floodplains, the Salt River and the north side of the Union Pacific Railroad (UPPR). Floodplain delineations for the Salt River were prepared in 1999. If new developments affect an already mapped area then a Letter of Map Revision (LOMR) is prepared. By law, developments cannot make the downstream floodplain of any mapped area worse. The District has studied the majority of the metropolitan area in more detail than a standard FEMA map. The study team uses the more detailed District information, FEMA mapping and internal analysis to develop drainage models for sizing drainage infrastructure along the proposed freeway.
	When was the last time that FEMA has updated their maps? Have they done any updates since 1985? So they would need to send out a survey crew to do this? My issue is that these maps haven't been updated since 1985. Wouldn't survey crews need to come out to this area if the maps were being updated? I really don't care about the FEMA map revisions done because the map letter changed. Are you using the most accurate information here?	Maps were updated for Maricopa County in 2005. Instead of sending out survey crews, most maps use elevations obtained from aerial photogrammetric methods (elevations from aerial photography not ground survey). However, each individual map may be based on elevation information gathered at different times and from different sources.

Floodplains, RE: Federal Emergency Management Association (FEMA) Flood Insurance Rate Maps (FIRM) (continued)	When were the FEMA floodplains maps updated? Could you please show the past and present maps at the next meeting? This would be great help showing in fact where the floodplains once were and where are now? With such a great amount of change from 1985 to 2008 in Ahwatukee this would be a great starting and end point of the FEMA floodplains maps.	Maps were updated for Maricopa County in 2005. Currently the only areas that have floodplains assigned to them are the Salt River and the Roosevelt Irrigation District (RID) Canal. Ahwatukee does not have any mapped FEMA floodplains. The study team is attempting to find copies of maps from the 1985 period and believes that it will be possible to provide them for comparison at a future CAT meeting.
Jurisdictional Waters	Was it ever settled who owns the Salt River?	A review of the Maricopa County Assessor's Web site revealed that the land within and around the Salt River near 59th Avenue includes federal, city and private (sand and gravel operations) ownership. It is unknown whether there are currently any court cases regarding this issue.
	I know there have been court cases about ownership of the Salt River bottom. Is there still any question of the ownership there?	
	Are the wells sites shown on the map in the presentation all active wells?	Most of the wells are active wells, but some may be geotechnical wells, abandoned wells or inactive wells. More detailed well information for those potentially adversely affected can be found in an appendix to the Water Resources technical report, which is available for review by making an appointment with Mike Bruder of ADOT Valley Project Management, at 602.712.6836 or with Mark Hollowell of ADOT's Environmental Planning Group, at 602.712.6819.
	Is there a way to find out which wells are which?	
Water Resources	So the water flows would be maintained, as they currently exist on the GRIC lands? Maintaining these types of flows on their lands is not the right way to do it. What level of water is flowing on the GRIC lands on an annual basis? Is this a project team goal to not allow this additional water to flow there?	Yes, currently the drainage design is based on the assumption that the rate of water flowing onto the GRIC land would be maintained. The recent right-of-entry permit that the GRIC issued to ADOT allows for the study team to analyze how water affects the GRIC land and to potentially work with GRIC representatives to develop a mutually beneficial drainage solution. The amount of water (volume) that flows onto GRIC land is largely based on the amount of rainfall during each individual year. The volume will change from year to year, depending on the amount of rainfall. The flow rate, which is measured in cubic feet per second (cfs) is what ADOT is maintaining. This is partially based on the capacity of the drainage facilities, in place along Pecos Road and the existing flows reaching each particular culvert. For example, east of 28th Street the six 10-foot by 5-foot box culverts have a capacity of 2,700 cfs. This does not necessarily mean that this flow would be allowed to cross onto GRIC land, but this is the existing capacity. The study team would prepare hydrologic models to determine the flow rate passing through each culvert at the design storm, during current and future conditions. Flow rates would be required to match, even if the culvert has a capacity to convey a larger flow.

Water Resources (continued)	How much water is currently flowing to GRIC property (yearly)? What changes will be designed into the culvert/water management system with the proposed Pecos Road alignment to maintain current flows onto GRIC?	The annual amount of flow (volume) varies from year to year, depending on the amount of rainfall (see previous answer). Bridges over washes and self-cleansing culverts are examples of drainage design features that will maintain current flows. Existing culverts in good condition may be extended. Drainage ditches would be designed to convey flow to particular outlets and would reduce the intensity of the flow. If needed, small on-site storage would be designed to reduce the intensity of any needed flow. Currently, spreader basins (a large shallow basin designed for faster evaporation of water) are located on the south side of Pecos Road. These would be evaluated and replaced to mimic existing conditions.
	How many wells would you think that this project would affect that would need to be replaced?	The level of detail of the information available from the Arizona Department of Water Resources database does not allow us to know exactly how many wells would need to be replaced. A full field survey of the wells would be conducted as a part of the right-of-way acquisition process. As identified in the technical summary, the potential exists that 26 wells could be adversely impacted in the Eastern Section and 17 wells could be adversely impacted in the Western Section.
	So you have no idea how many wells would be lost?	
	There are approximately 620 undeveloped acres in Ahwatukee. When designing for the drainage facilities, will this acreage be compiled as developed or undeveloped? Knowing that in the near future this area will be developed.	At the time the final storm water drainage model was to be developed, the total impervious area (pavement, houses, etc.) and pervious areas (dirt, rocks, desert, grass, etc.) would be included. Because of the potential development in the area, platted or partially designed parcels would be considered developed. The stormwater drainage model can be adjusted for changes in the pervious and impervious areas of this 620-acre section (and any other undeveloped areas in the drainage model area). Currently, the City of Phoenix requires that new developments retain the 100-year 2-hour storm on-site. This retention will lower the extra runoff that would be produced because of the increased impervious area associated with development.
	How will rain water from heavy storms [i.e., 5, 10, 20 and 100 year rains] be collected, retained and then released due to the placement of South Mountain Loop 202? Will this cause soil erosion down stream of retention? Please have ADOT or HDR Engineering show drawings and maps of the planned rainwater collection and release system and include these in the EIS. Please explain how many acre-feet or gallons will flow and be collected during the above mentioned scenarios.	Discussion of the planned drainage system was discussed during the February 28, 2008, CAT meeting. A number of pictures and examples were provided in the presentation. Generally, the drainage design includes channels parallel to the freeway to collect water. In the Eastern Section, water would be passed under the freeway through box culverts or under bridges. In the Western Section, water would be conveyed to the Salt River. Drainage basins would be needed in the Western Section for storage of water during peak flows. Drainage features have been shown throughout the study process and will be included as appropriate in the Draft Environmental Impact Statement.

Right-of-Way	Aren't developers aware that there is a freeway in the books?	Review of previously published ADOT, City of Phoenix, MAG and developer documents shows that disclosure of the freeway project and alignments has occurred since 1980, when the study area was still vacant land. The City of Phoenix first documented the need for a future major traffic corridor to serve the southwest part of the city in a 1980 planning report, *Annexation Implications in the Area of South Mountain Park*. To facilitate future traffic volumes, the City of Phoenix recommended constructing a six-lane freeway interchange on Pecos Road and a six-lane street from Pecos Road continuing northwest to 51st Avenue. In 1985, MAG also responded to that need by creating a similar planned alignment for a future six-lane freeway on Pecos Road continuing northwest to 59th Avenue. ADOT adopted MAG's future freeway alignment and included it in the 1985 *Regional Transportation Plan* and Proposition 300, the 20-year transportation funding measure approved by voters of the Phoenix metropolitan region. In 1988, the State Transportation Board approved the alignment for the future freeway, which became known as the South Mountain Transportation Corridor. ADOT uses the "Red Letter" process to coordinate planned transportation projects with proposed developments within local jurisdictions. Local jurisdictions are requested to notify ADOT of potential development plans within a quarter-mile of established or proposed project corridors. ADOT assigns a Red Letter Coordinator to review a given proposed development project and provide a written response explaining the transportation project's potential effects on the proposed development.

Alternative screening	Slide 12 from previous 02/28 presentation says that a parkway causes impacts. Please give us an analysis of the cost differential between the proposed freeway and a possible parkway in regards to home displacement, business relocation, ROW [right-of-way] acquisition and environmental impacts. Report this in dollars and not philosophy/narrative.	A quantitative analysis of the cost and impacts between a parkway and a freeway was not conducted as a part of this study, nor is it necessarily required. The parameters of a parkway alternative (number of lanes, width of right-of-way, traffic capacity, ownership) were assessed early in the study process by ADOT, FHWA and the City of Phoenix staff of lead engineers, scientists and planners. Based on these parameters, the team determined that a parkway alternative would have similar types of impacts as a freeway in the Eastern Section, including increased traffic volumes; increased air quality and noise level impacts associated with the traffic; residential displacements; and visual, biological and other environmental impacts associated with cuts through the South Mountains. The team acknowledged in its assessment that these impacts would be slightly less than those that would occur from a freeway, but because a parkway would not adequately address capacity deficiency, contribute to optimizing the RFS performance or have consistency with goals and objectives of the RTP, it was eliminated from further consideration. Today, the study team believes the reasons to not carry a parkway alternative forward into detailed study remain valid. To further support this conclusion, a parkway facility would be owned and operated by the City of Phoenix, which has stated and continues to state it would not support a parkway.
Miscellaneous	I don't understand how you can be reviewing the information in the Draft EIS and still updating. You are revising it even though it is being reviewed?	The Draft EIS is a document that contains information from technical analyses. Initially each resource was analyzed and the process and results documented in respective technical reports. When the technical reports were completed, the information was carried forward into the Draft EIS, which has been submitted to ADOT at various stages for review. The analysis is continuously updated as new or more information becomes available over time. For example, land use is analyzed and then the methods and results are summarized in the Land Use technical report. As time passes, new developments may arise or the project design may be refined, which would require updating the analysis. After the analysis and technical document are updated with new information, the Draft EIS is updated and a new version is then submitted to ADOT for review. During this process the team keeps track of changes and updates. This is common practice across the country when preparing EISs.

Miscellaneous (continued)	How will the 30 acres be released from city ownership to state ownership to construction of S Mt Loop? What city and staff officials will sign the document turning over this parkland to the state?	The parkland required for the construction of the proposed South Mountain Freeway would be treated similarly to any other property ADOT would need to acquire. ADOT would follow the policies described in the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*. The City of Phoenix, under provisions set forth in the Phoenix Mountains Preserve Act, would not be able to sell parkland to ADOT. Therefore, it is anticipated that ADOT would undertake the condemnation process to obtain the land. The transfer of land would be signed for by authorized representatives of both agencies.
	Now that the West side of S Mt. Loop 202 has been selected where will the I-10 Reliever or after the renaming by ADOT Rt 801 connect to S Mt Loop? At what specific point will the Rt 801 connect to S Mt Loop 202?	The proposed SR 801 freeway may connect to the proposed South Mountain Freeway just south of Broadway Road. (See attached draft map, which can also be found on the ADOT project Web site for SR 801.)
	I might be off on the total but I thought I heard earlier that 3 million cubic yards of soil would be removed from S Mt Park (Mtn). Please explain just what ADOT will do with all this soil. Please show a graph on what percentage will be used for highway construction and how much will be hauled away. Please include the destination if hauled away.	The study team anticipates that almost all of the excavated rock and soil would be used in fill areas along the freeway corridor. Actual quantities of material used and hauling locations would be determined during construction. In some instances, the excavated material is recycled into other portions of the project, such as for riprap (broken stone that can be used for foundations of embankments or for structural backfill). Material that would not be used for the project, such as fine soils, may be hauled to an ADOT maintenance yard and used in other projects.
	Many questions were asked about human health from the effects of traffic to people living adjacent to this highway and others up to 1 kilometer away. Will all these questions be included and answered in the Environmental Impact Statement(s) for S Mt Loop 202?	Questions and comments, including those referring to human health, will be addressed and documented as part of the EIS process. The questions may not be answered to the level of conclusion desired by the questioner. CEQ 40 CFR Part 1502.22 addresses disclosure of impacts, data and information when such is not fully known. When such an issue is part of the DEIS, such as MSATs, that is how information will be presented.

Questions to be addressed in a future parking lot issues memorandum

Topic	SMCAT member/public question
Alternative screening	How do the impacts to residences in this area compare to those for the other freeways that have been recently constructed? I suggest that you do a design study before you make a decision whether or not to build this freeway.
Water resources	How does compensation for lost wells work? Let's say that the well cannot be replaced. How much would ADOT compensate the well owner?
	How long would the well owner be compensated?
	Could GRIC legally refuse to allow ADOT to dump freeway drainage on to GRIC land?

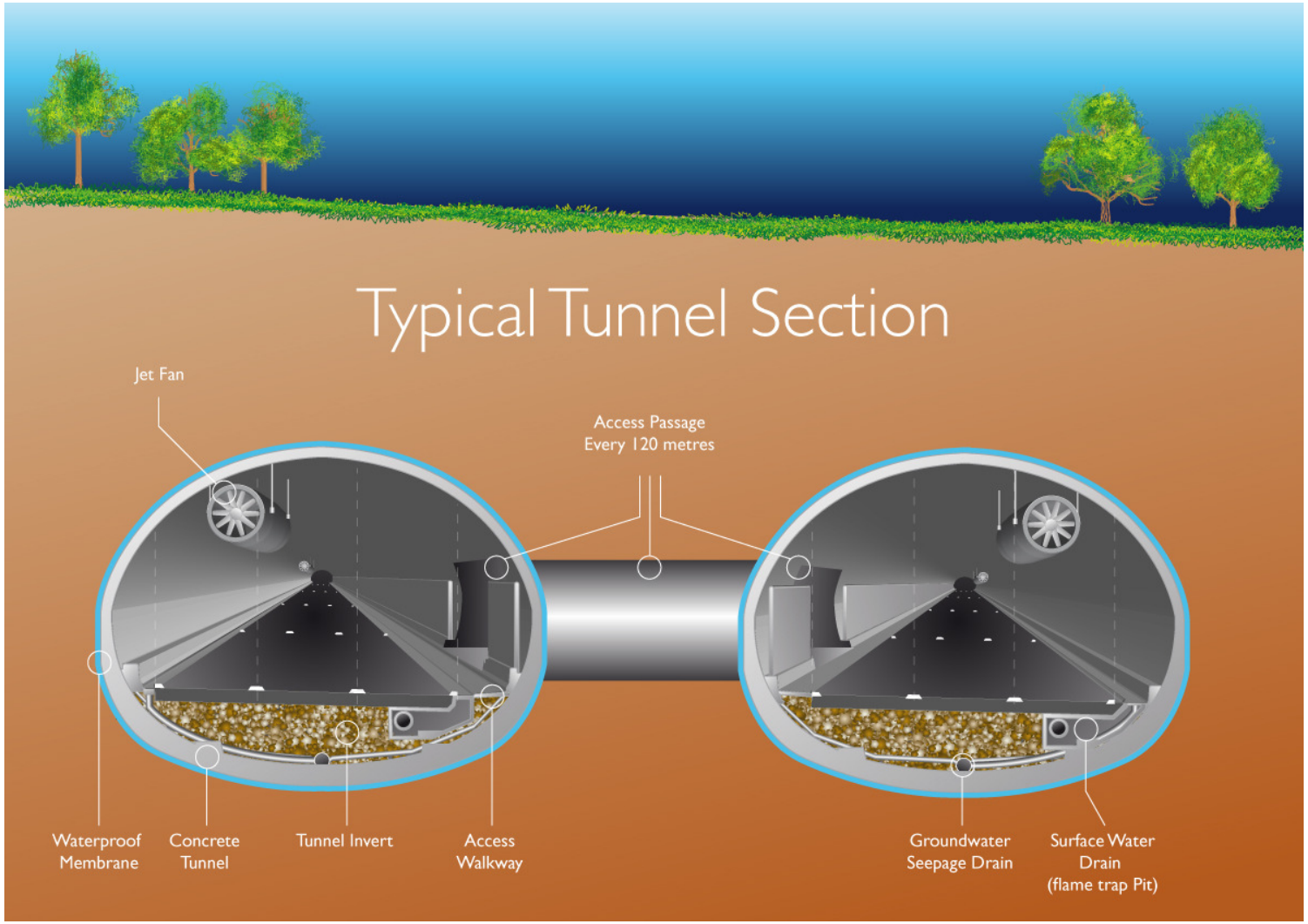
RE: Question on tunnels

The Queen Creek Tunnel is located on US 60, just east of Superior, Arizona.

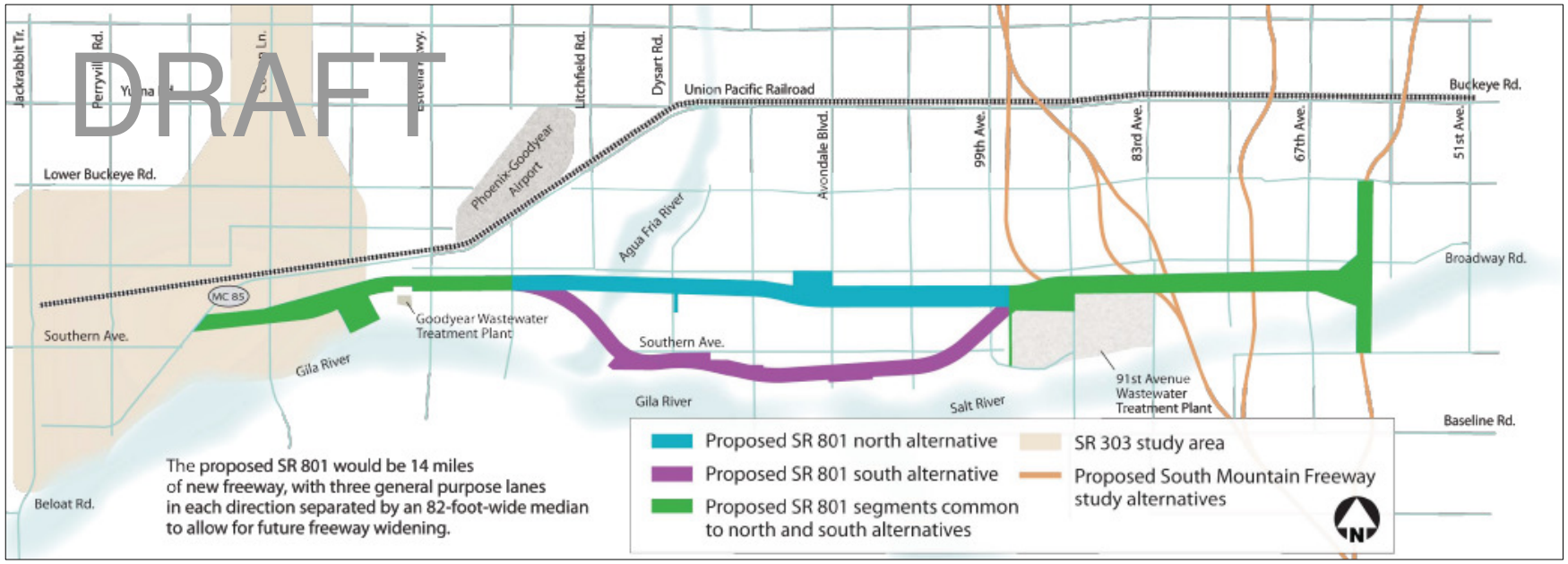
Heading westbound through the Queen Creek Tunnel

Heading toward the Queen Creek Tunnel, eastbound entrance

The image below is a cross section of the twin tunnels that traverse under the Mullum Mullum Valley in Australia.



Re: Question on SR 801 connection with the South Mountain Freeway



Source: http://www.azdot.gov/Highways/Valley_Freeways/SR801/East/Index.asp